Fall 2016 Levee Maintenance Deficiency Summary Report Overall LMA & Unit Ratings, including USACE Erosion Survey

Sacramento River Basin

RD1601	Overall LMA	Total LMA						
Reclamation District No. 1601 Twitchell	Rating	Miles						
	A	2.43						
Rated Item		Maintena	nce Deficiancy		Enforc	ement	Design 8 Obsole	System scence
Nateu item	M Miles	U Miles	M + 4U Miles	Threshold %	M Miles	U Miles	M Miles	U Miles
Supplemental								
DWR UCIP Field Study					0.07			
LMA Totals:	0.00	0.00	0.00	0.00%	0.07	0.00	0.00	0.00
Unit No. 01 Threemile Slough LB	Overall Unit Rating	Total Unit Miles						
Unit No. 01 Threemile Slough LB RD1601								
RD1601	Rating	Miles 2.43	nce Deficiancy		Enford	ement	Design & Obsole	System scence
	Rating	Miles 2.43	nce Deficiancy M + 4U Miles	Threshold %	Enforce M Miles			
RD1601	Rating A	Miles 2.43 Maintena		Threshold %			Obsole	scence
RD1601 Rated Item	Rating A	Miles 2.43 Maintena		Threshold %			Obsole	scence

Winter **

Flood Control Project Maintenance Levee Inspections

LMA District Cover Sheet

Fall 2016 Levee Inspection Results

Reclamation District No. 1601 Twitchell

Summer **

Spring

	(March - May)	(June - August)	(September - November)	(December - February)
† Overall LMA Rating (Fall Only)			A	
	** Non-receipt of Summ Reports may effect or			
	d using the same criter	ria in the spring and i	n the fall.	
FALL INSPECTIONS: The overall maintena within the attached u			tion and maintenance de ended to be an indiction of	
Comments				

Unit Cover Sheet

Fall 2016 Levee Inspection Results

Reclamation District No. 1601 Twitchell

Waterway	Bank	Unit Miles
Unit No. 01 Threemile Slough	Left	2.43

	Spring (March - May)	Summer (June - August)	(September - November) Fall	Winter (December - February)
Unit Maintenance Rating (Fall Only)			Α	
Date of Inspection	3/29/2016 - 3/29/2016		9/8/2016 - 9/8/2016	
DWR Inspector	Richard Willoughby		Richard Willoughby	
Accompanied By				

Summer & Winter Inspections

The Local Maintaining Agency (LMA) is responsible for summer and winter inspections. The LMA is required to submit a report regarding summer and winter inspections to the California Department of Water Resources (DWR).

DWR must be informed on the:

- a) completion of the inspection
- b) any changes other than the results of normal maintenance
- c) corrections to deficiencies noted in this report

If additional items are noted, further documentation of those items must also be submitted.

The LMA should submit this information to DWR using the LMA web application tool available at:

http://cdec.water.ca.gov/lma.html

If the LMA is unable to submit information on this webpage, please contact DWR for assistance.

The LMA should submit the information and any associated documentation by September 30 for summer inspections and March 31 for winter inspections.

Levee Inspection Report By Mile - Fall 2016

Reclamation District No. 1601 Twitchell

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Threemile Slough	Left	2.43	09/08/2016 09/08/2016	Richard Willoughby

LM Start	0.00	Rating **	Α	Issue No.		6		
LM End	0.00	Issue Type +	Ma	Location *		N/A		
Category	Earthen Levee			GPS La	tituc	le/Longitude		
Calegory				Start		End		
Item		s & Maintena	nce		0		0	
item	Manuals				0		0	
DWR ID	DWR_RD1	601_01_s _ 201	3_6					
		Comn	nent Coc	de				
		Inspecto	or Comm	nent				
LMA has a	LMA has a copy of the O & M Manuals on file at the office.							

No Photos

LM Start	0.00	Rating	A	issue ivo.		1	
LM End	0.00	Issue Type +	Ma	Location *		N/A	
Category	Earthen L	evee		GPS La	atituc	de/Longitude	
Category				Start		End	
Item		y Supplies &			0		c
пеш	Equipmen	nt			0		c
DWR ID	DWR_RD1	601_01_s _ 201	3_7				
		Comn	nent Cod	de			

Inspector Comment

No Photos

LM Start	0.00	Rating **	Α	Issue No.	8
LM End	0.00	Issue Type +	Ма	Location *	N/A

Earthen Levee GPS Latitude/Longitude Category Flood Preparedness & Training Item

DWR_RD1601_01_s _ 2013_8 DWR ID

LMA has adequate floodfight supplies on hand.

Comment Code

Inspector Comment

LMA staff involved in the yearly Twitchell Island exercise.

No Photos

* Location

N/A: Not Applicable

LS : Land Side WS: Water Side

A : Acceptable M : Minimally Acceptable U : Unacceptable

N : Not Inspected/Rated C : Corrected A/W : Acceptable but Monitor & Maintain + Issue Type

Ma : Maintenance Deficiancy
Ob : Design & System Obsolescence

En: Enforcement

Levee Inspection Report By Mile - Fall 2016

Reclamation District No. 1601 Twitchell

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Threemile Slough	Left	2.43	09/08/2016 09/08/2016	Richard Willoughby

LM Start	0.00	Rating **	Α	Issue No.		13		
LM End	0.25	Issue Type +	Ma	Location *		CR		
Cotogony	Earthen L	evee		GPS La	atitud	e/Longitude		
Category				Start		End		
Item	Crown Su	rface / Depres	ssions /	38.1222	35 °		0	
item	Rutting			-121.6825	53°		0	
DWR ID	DWR_RD1	601_01_s _ 201	5_13	'				
		Comn	nent Cod	de				
C2 : Repai	ir depressi	ons or ruts in	the crow	n or slope.				
		Inspecto	or Comm	nent				
Acceptable	e levee cro	wn.						



Looking south at overview of levee. Fall 2016.

LM Start	0.11	Rating **	М	Issue No.		14	
LM End	0.11	Issue Type +	En	Location *	CR		
Supplemental			GPS La	atitud	le/Longitude		
Category	egory			Start		End	
Item	DWR UCI	P Field Study		38.1207	16°	38.120716°	
iteiii				-121.6827	96°	-121.682796°	
DWR ID							
	Comment Code						

Inspector Comment

FS_ID:22043 DS_ID:20950 EP_NO: 11227

Repair Type: Non-Urgent Crossing Status: Found

UCIP Comments: Appears this crossing might be been recently modified--exposed section of pipe is protected with white paint. Need to contact owner to obtain records. Recommend clearing vegetation along the pipe alignment.

FIELD_STRUCT_DESC: 14-inch pipe (not 12-inch pipe as original description noted) through the levee, 4.0 feet below the crown. Siphon primer on waterward shoulder. 36-inch steel (not concrete as original description noted) pipe with shut-off valve inside at landward toe ditch.

(ABO No. 11227-1975) FS Date: 5/14/2013

Photo 1 of 2 : UCIP_FA_2016_22043_37621.jpg



View of waterward side. 12-inch pipe to the right and 14-inch pipe to the

Levee Inspection Report By Mile - Fall 2016

Reclamation District No. 1601 Twitchell

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Threemile Slough	Left	2.43	09/08/2016 09/08/2016	Richard Willoughby

LM Start	0.11	Rating **	М	Issue No.		14 (cont)		
LM End	0.11	Issue Type +	En	Location *	CR			
Category	Supplemental				GPS Latitude/Longitude			
Calegory				Start		End		
Item	DWR UCI	P Field Study		38.1207	16°	38.120716°		
пеш				-121.6827	96 °	-121.682796 °		
DWR ID								

Inspector Comment

Comment Code

FS_ID:22043 DS_ID:20950 EP_NO: 11227

Repair Type: Non-Urgent Crossing Status: Found

UCIP Comments: Appears this crossing might be been recently modified--exposed section of pipe is protected with white paint. Need to contact owner to obtain records. Recommend clearing vegetation along the pipe alignment.

FIELD_STRUCT_DESC: 14-inch pipe (not 12-inch pipe as original description noted) through the levee, 4.0 feet below the crown. Siphon primer on waterward shoulder. 36-inch steel (not concrete as original description noted) pipe with shut-off valve inside at landward toe ditch. (ABO No. 11227-1975)

FS Date: 5/14/2013

Photo 2 of 2 : UCIP_FA_2016_22043_37622.jpg



View of landward side with canal located at toe.

LM Start	0.11	Rating **	М	Issue No.	16		
LM End	0.11	Issue Type +	En	Location *	CR		
Category			GPS Latitude/Longitude				
Category			Start		End		
Item	DWR UCI	P Field Study		38.12070	8 °	38.120708°	
item		-		-121.68279	8 °	-121.682798°	
DWR ID							
	Comment Code						

Inspector Comment

FS_ID:42024 DS_ID:20953 EP_NO: N/A

Repair Type: Non-Urgent Crossing Status: Found

UCIP Comments: Appears this crossing might have been recently modified--O&M manual calls for 8 inch pipe not 12 inch pipe, need additional information--exposed section of pipe is protected with white paint. Need to contact owner to obtain records. Recommend clearing

vegetation along the pipe alignment.

FIELD_STRUCT_DESC: 12-inch (not 8 inch listed in USACE) siphon through the levee approximately 3.2 feet below the crown. The existing 8-inch pipe listed in the O&M manual is no longer present at LM 0.1 (USACE-1959), no permit was found authorizing crossing modifications. FS Date: 5/14/2013

Photo 1 of 2: UCIP_FA_2016_42024_60809.jpg



View of waterward side. 12-inch pipe on the right (u/s) and 14-inch pipe on the left (d/s).

Levee Inspection Report By Mile - Fall 2016

Reclamation District No. 1601 Twitchell

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Threemile Slough	Left	2.43	09/08/2016 09/08/2016	Richard Willoughby

LM Start	0.11	Rating **	М	Issue No.		16 (cont)		
LM End	0.11	Issue Type +	En	Location *	* CR			
Category				GPS Latitude/Longitude				
Calegory				Start		End		
Item	DWR UCI	P Field Study		38.12070	08°	38.120708	0	
пеш				-121.68279	98°	-121.682798	0	
DWR ID						'		

Inspector Comment

Comment Code

FS_ID:42024 DS_ID:20953 EP_NO: N/A

Repair Type: Non-Urgent Crossing Status: Found

UCIP Comments: Appears this crossing might have been recently modified--O&M manual calls for 8 inch pipe not 12 inch pipe, need additional information--exposed section of pipe is protected with white paint. Need to contact owner to obtain records. Recommend clearing vegetation along the pipe alignment.

FIELD_STRUCT_DESC: 12-inch (not 8 inch listed in USACE) siphon through the levee approximately 3.2 feet below the crown. The existing 8-inch pipe listed in the O&M manual is no longer present at LM 0.1 (USACE-1959), no permit was found authorizing crossing modifications. FS Date: 5/14/2013

Photo 2 of 2: UCIP_FA_2016_42024_60810.jpg



View of pipes from landward shoulder. Levee is a gravel road.

LM Start	0.35	Rating **	Α	Issue No.		1	
LM End	0.45	Issue Type +	Ma	Location *		CR	
Category Earthen Levee				GPS Latitude/Longitude			
Calegory				Start		End	
Item	Crown Surface / Depressions /				36°	38.115921 °	
пеш	Rutting		-121.682869°		-121.682293 °		
DWR ID	DWR_RD1	601_01_f _ 201	5_1				
Comment Code							

C2: Repair depressions or ruts in the crown or slope.

Inspector Comment

Rutting on levee crown.

No Photos

* Location	** Rating		+ Issue Type
LS : Land Side N/A : Not Applicable WS : Water Side CR : Crown	A : Acceptable M : Minimally Acceptable U : Unacceptable	N : Not Inspected/Rated C : Corrected A/W : Acceptable but Monitor & Maintain	Ma : Maintenance Deficiancy Ob : Design & System Obsolescence En : Enforcement

Levee Inspection Report By Mile - Fall 2016

Reclamation District No. 1601 Twitchell

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Threemile Slough	Left	2.43	09/08/2016 09/08/2016	Richard Willoughby

LM Start	0.79	Rating **	М	Issue No.	20		
LM End	0.79	Issue Type +	En	Location *		CR	
Category				GPS La	atitud	e/Longitude	
Calegory	alegory			Start		End	
Item	DWR UC	IP Field Study		38.1110	78°	38.111078	0
пеш				-121.6820	11 °	-121.682011	0
DWR ID							
		Comn	nent Cod	de			

Inspector Comment

FS_ID:50031 DS_ID:20958 EP_NO: N/A

Repair Type: Non-Urgent Crossing Status: Not Found

UCIP Comments: 8/02/2016 LMA representative, Rick Carter, was notified on 7/5/2016 by Underground Service Alert that no pipe line was idenfied within RD1601 levees. UCIP will need to coordinate with PG&E directly to determine fate of crossing. This crossing was downgraded from Urgent to Non-Urgent due to the crossing not in service. (DWR UCIP - omagana)7/05/2016 No markers present. According to LMA representative, Rick Carter, this crossing is an abandoned PG&E 450 low pressure line. LMA representative is coordinating with Underground Service Alert (USA) to confirm location of crossing. Once USA provides location Rick Carter will provide photos of location and overview photos of crossing to Olivia M (DWR UCIP). Pending Action - Need to coordinate with PG&E to determine details about the year and method of pipe abandonment. (DWR UCIP - omagana)5/14/2013 no markers or signs available--will need to coordinate with owner to determine if crossing is still being used or abandoned. (DWR UCIP - omagana) FIELD_STRUCT_DESC: 12-inch steel 450 low pressure gas line through the levee at an unknown depth. Facility on landside (LS)-not found in 2013. USACE Drawing indicates gas line and facility were relocated. (PG&E abandoned line). [Additional Reference(s): DWR Levee Log, 2005. USACE Sacramento O&M Manual Unit No. 102, April 1959, Drawing No. 50-4-2958]. FS Date: 7/5/2016

No Photos

Levee Inspection Report By Mile - Fall 2016

Reclamation District No. 1601 Twitchell

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Threemile Slough	Left	2.43	09/08/2016 09/08/2016	Richard Willoughby

LM Start	0.79	Rating **	M	Issue No.	17		
LM End	0.79	Issue Type +	En	Location *	CR		
Category				GPS Latitude/Longitude			
Calegory	gory					End	
Item	DWR UCI	P Field Study		38.1110	78°	38.111078°	
пеш			-121.6820 ⁻	11 °	-121.682011 °		
DWR ID							
	Comment Code						

Inspector Comment

FS_ID:39946 DS_ID:24069 EP_NO: N/A

Repair Type: Non-Urgent Crossing Status: Indicator Found

UCIP Comments: Unable to determine if line crosses levee. Need to contact owner to determine if crossing goes through levee. Also need to determine permit authorizing work on landward side.

FIELD_STRUCT_DESC: Steel stand pipe with PVC pipe inside located on landward shoulder. Rip rap located on waterward slope. Unable to determine if crossing goes through levee. Appears to be monitoring gas

FS Date: 3/19/2009

LM Start	0.79	Rating **	М	Issue No.	17 (cont)
LM End	0.79	Issue Type +	En	Location *	CR

Photo 1 of 2: UCIP_FA_2016_39946_71862.jpg



View of landward side--standpipe located on slope.

Photo 2 of 2: UCIP_FA_2016_39946_71860.jpg



View of landward side--dense vegetation along slope.

Levee Inspection Report By Mile - Fall 2016

Reclamation District No. 1601 Twitchell

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Threemile Slough	Left	2.43	09/08/2016 09/08/2016	Richard Willoughby

LM Start	1.00	Rating **	Α	Issue No.		2		
LM End	1.07	Issue Type +	Ma	Location *	CR			
Category	Earthen L	evee		GPS La	atitud	e/Longitude		
			Start		End			
Crown Surface / Depressions /			ssions /	38.1080	88°	38.107128°		
item	Rutting		-121.682784°		-121.683190°			
DWR ID	DWR_RD1	DWR_RD1601_01_f _ 2015_2						
		Comn	nent Cod	le				
C2 : Repai	r depressi	ons or ruts in	the crow	n or slope.				
Inspector Comment								



Looking northwes at overview of levee.

LM Start	1.40	Rating **	М	Issue No.		18	
LM End	1.40	Issue Type +	En	Location *		CR	
Category			GPS Latitude/Longitude				
Calegory			Start		End		
DWR UCIP Field Study			38.10242	22 °	38.102422°		
item				-121.68428	39°	-121.684289°	
DWR ID							

Inspector Comment

Comment Code

FS_ID:39947 DS_ID:24068 EP_NO: N/A

Repair Type: Non-Urgent Crossing Status: Indicator Found

UCIP Comments: Unable to determine if line crosses levee. Need to contact owner to determine if crossing goes through levee. Also need to determine permit authorizing work on landward side.

FIELD_STRUCT_DESC: Steel stand pipe with PVC pipe inside located on landward shoulder. Rip rap located on waterward slope. Unable to determine if crossing goes through levee. Appears to be monitoring gas

FS Date: 3/19/2009

Photo 1 of 2: UCIP_FA_2016_39947_71865.jpg



View of landward side.

Levee Inspection Report By Mile - Fall 2016

Reclamation District No. 1601 Twitchell

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Threemile Slough	Left	2.43	09/08/2016 09/08/2016	Richard Willoughby

LM Start	1.40	Rating **	М	Issue No.		18 (cont)	
LM End	1.40	Issue Type +	En	Location *		CR	
Category				GPS Latitude/Longitude			
Calegory		Start		End			
ltom	Item DWR UCIP Field Study			38.1024	22°	38.102422	0
пеш				-121.6842	89°	-121.684289	0
DWR ID							

Inspector Comment

Comment Code

FS_ID:39947 DS_ID:24068 EP_NO: N/A

Repair Type: Non-Urgent Crossing Status: Indicator Found

UCIP Comments: Unable to determine if line crosses levee. Need to contact owner to determine if crossing goes through levee. Also need to determine permit authorizing work on landward side.

FIELD_STRUCT_DESC: Steel stand pipe with PVC pipe inside located on landward shoulder. Rip rap located on waterward slope. Unable to determine if crossing goes through levee. Appears to be monitoring gas

FS Date: 3/19/2009



PVC inside standpipe located on landward side.

Rating ** Issue No. LM Start 1.77 M 19 Issue Type + Location * CR 1.77 LM End Supplemental GPS Latitude/Longitude Category Start End DWR UCIP Field Study 38.097105° 38.097105 Item -121.684815 ° -121.684815 ° DWR ID

Comment Code

Inspector Comment

FS_ID:39948 DS_ID:24071 EP_NO: N/A

Repair Type: Non-Urgent Crossing Status: Indicator Found

UCIP Comments: Unable to determine if line crosses levee. Need to contact owner to determine if crossing goes through levee. Also need to determine permit authorizing work on landward side.

FIELD_STRUCT_DESC: Steel stand pipe with PVC pipe inside located on landward shoulder. Rip rap located on waterward slope. Unable to determine if crossing goes through levee. Appears to be monitoring gas well.

FS Date: 3/19/2009

Photo 1 of 2: UCIP_FA_2016_39948_71869.jpg



Standpipe located on landward side.

* Location	** Rating		+ Issue Type
LS : Land Side N/A : Not Applicable WS : Water Side CR : Crown	A : Acceptable M : Minimally Acceptable U : Unacceptable	N : Not Inspected/Rated C : Corrected A/W : Acceptable but Monitor & Maintain	Ma : Maintenance Deficiancy Ob : Design & System Obsolescence En : Enforcement

Levee Inspection Report By Mile - Fall 2016

Reclamation District No. 1601 Twitchell

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Threemile Slough	Left	2.43	09/08/2016 09/08/2016	Richard Willoughby

LM Start	1.77	Rating **	М	Issue No.		19 (cont)	
LM End	1.77	Issue Type +	En	Location *		CR	
Category				GPS Latitude/Longitude			
Calegory				Start		End	
Itom	Item DWR UCIP Field Study			38.0971	05 °	38.097105°	
пеш				-121.684815 °		-121.684815 °	
DWR ID						·	

Inspector Comment

Comment Code

FS_ID:39948 DS_ID:24071 EP_NO: N/A

Repair Type: Non-Urgent Crossing Status: Indicator Found

UCIP Comments: Unable to determine if line crosses levee. Need to contact owner to determine if crossing goes through levee. Also need to determine permit authorizing work on landward side.

FIELD_STRUCT_DESC: Steel stand pipe with PVC pipe inside located on landward shoulder. Rip rap located on waterward slope. Unable to determine if crossing goes through levee. Appears to be monitoring gas well.

FS Date: 3/19/2009



View of landward side.

LM Start	2.05	Rating **	M	Issue No.		15	
LM End	2.05	Issue Type +	En	Location *		CR	
Category	ental	GPS Latitude/Longitude					
Calegory				Start		End	
Item	DWR UCIP Field Study			38.0931	07°	38.093107°	
item				-121.6845	25°	-121.684525°	
DWR ID							

Comment Code

Inspector Comment

FS_ID:19545 DS_ID:20951 EP_NO: 2909A Repair Type: Non-Urgent Crossing Status: Found

UCIP Comments: Appears this crossing might be been recently modified--exposed section of pipe is protected with white paint. Need to contact owner to obtain records. Recommend clearing vegetation along the pipe alignment. Dense vegetation on landward slope limits the inspector's visibility to identify signs of leaks along levee slope. FIELD_STRUCT_DESC: 8-inch siphon pipe through levee, 2.4 feet below crown. Cutoff wall around pipe at center of levee. Siphon breaker on apex of pipe on landward shoulder. Hand primer pump on landward slope. (Permit No. 2909A-1960)

FS Date: 5/14/2013

Photo 1 of 2: UCIP_FA_2016_19545_33173.jpg



View of levee crown looking downstream at crossing.

Levee Inspection Report By Mile - Fall 2016

Reclamation District No. 1601 Twitchell

Waterway	Bank	Unit Miles	Inspection Start/End	Inspector
Unit No. 01 Threemile Slough	Left	2.43	09/08/2016 09/08/2016	Richard Willoughby

LM Start	2.05 Rating ** M		М	Issue No.		15 (cont)	
LM End	2.05	Issue Type +	En	Location *	CR		
Category			GPS Latitude/Longitude				
Calegory		Start		End			
Item	DWR UCIP Field Study			38.09310)7°	38.093107	o
пеш				-121.68452	25 °	-121.684525	0
DWR ID							

Inspector Comment

Comment Code

FS_ID:19545 DS_ID:20951 EP_NO: 2909A

Repair Type: Non-Urgent Crossing Status: Found

UCIP Comments: Appears this crossing might be been recently modified--exposed section of pipe is protected with white paint. Need to contact owner to obtain records. Recommend clearing vegetation along the pipe alignment. Dense vegetation on landward slope limits the inspector's visibility to identify signs of leaks along levee slope. FIELD_STRUCT_DESC: 8-inch siphon pipe through levee, 2.4 feet below crown. Cutoff wall around pipe at center of levee. Siphon breaker on apex of pipe on landward shoulder. Hand primer pump on landward slope. (Permit No. 2909A-1960)

FS Date: 5/14/2013

Photo 2 of 2: UCIP_FA_2016_19545_33174.jpg



View of levee crown looking upstream at crossing.